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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,276	01/02/2002	Shaun Pendo	047711-0280	6820

7590 11/02/2005

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EXAMINER	
CROSS, LATOYA I	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/038,276	PENDO ET AL.	
	Examiner	Art Unit	
	LaToya I. Cross	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14 and 29-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 3-14 29-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to Applicants' remarks filed on August 16, 2005. Claims 1, 3-14, 29-47 are pending.

Withdrawal of Rejections from Previous Office Action

- The anticipation rejection over Schulman '043 and the obviousness rejections based on Schulman '043 in combination with other references are withdrawn in view of Applicants' amendment to recite the vias as linear hollow paths. Since Schulman '043 teach "stair-stepped" vias, the reference no longer anticipates the claimed invention.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, 10-14, 29, 31-34, 39-47 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent 5,693,577 to Krenik et al.

Krenik et al teach a silicon based biomedical sensor. The sensor comprises a substrate (22) made of silicon ceramic material. On one side of the substrate, there exists an enzyme sensor (42). On the opposite side of the substrate, electrical contacts (30, 32) are disposed. Vias (34, 36) extend from the face of the substrate to the back side of the substrate (figure 3, col. 2, lines 63-65). The vias are formed by depositing impurities into openings (29) and diffusing at 1300°C for 157 hours

(hardening step as recited in claims 32-34). The diffusion step creates conductive regions that are hermetically sealed and form a linear hollow path from the sensor side of the substrate to the electronics side of the substrate. At col. 3, lines 18-25, Krenik et al teach that a metal layer (chromium, gold or titanium) is deposited over the front and back side of the substrate and thus over the vias, as recited in claims 10-11. With respect to claim 13, Krenik et al teach multiple vias (34, 36), as shown in figure 3. With respect to claim 31, the reference teaches that the enzyme layer (42) is reactive to human blood, enabling a measurement of the blood sugar level (biological condition) based upon the resistance between the leads (col. 3, lines 48-51). To take resistance measurements, the sensor is placed in a device (not shown) having contacts in electrical communication with backside contacts (30, 32). Further, with respect to claim 34, figure 4 of Krenik et al show the via being a hollow path disposed from one side of the substrate to the other side of the substrate without interruption.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 3, 4, 7, 30, 35-36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krenik et al in view of Wolf et al.

The disclosure of Krenik et al described above. Krenik et al fail to teach 1) alumina substrates and 2) gold as the conductive material to fill the via.

Wolf et al teach implantable medical devices, similar to those disclosed by Schulman et al, having ceramic substrates with sensors and electrodes. The ceramic substrates are taught as alumina or silicon based substrates (col. 6, lines 37-46). Vias (62-68) form conductive paths throughout the substrate. Wolf et al teach the vias may be filled with conductive material such as gold-filled epoxies (col. 9, lines 42-65 and col. 14, line 65 – col. 15, line 3). Further, Wolf et al teach that the vias may be filled

by conventional method such as laser cutting, drilling, punching, etc (col. 9, lines 42-50). Wolf et al also teach that the layered substrate may be laminated together. See (col. 10, lines 1-15 and figure 10, step S106).

Because Wolf et al teach the equivalency of silicon and alumina substrates in biosensors and the conventional use of gold as a conductive material to fill vias in implantable medical devices, it would have been obvious to one of ordinary skill in the art to use alumina substrates and gold material to fill the vias disclosed in Krenik et al to provide a suitable sensor having a conductive passageway through the ceramic substrate.

6. Claims 5 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krenik et al in view of Schulman '808.

The disclosure of Krenik et al is described above. With respect to claims 5 and 37, Krenik et al fail to teach platinum as the conductive material to fill the via.

Schulman '808 teaches an implantable device having a substrate having circuitry and electrically conductive vias. Schulman '808 teaches that the vias are formed of platinum to make the vias hermetic (col. 8, lines 16-29). It would have been obvious to one of ordinary skill in the art to use platinum to fill the vias disclosed in Krenik et al to form a conductive pathway through the structure that also forms a hermetic seal for the pathway.

7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krenik et al in view of US patent 5,750,926 to Schulman et al.

With respect to claims 8-9, Krenik et al fail to teach a cap covering the electronics side of the device.

Schulman et al teach an implantable sensor device comprising a substrate having electronic circuitry on one side and electrode pairs on the other side. Schulman et al teach that if a cover/lid is provided (40), the electronic circuitry is shrouded and provided with a protective housing. See col. 7, lines 3-14. It would have been obvious to one of ordinary skill in the art to incorporate a cover (lid) over the electronics side of the device in Krenik et al to allow the device to operate in environments that would ordinarily be harmful to the electronic circuitry.

Response to Arguments

8. Applicant's arguments filed August 16, 2005 have been fully considered but they are not persuasive. With respect to the rejection over Krenik et al, Applicants argue that Krenik et al fail to teach linear vias filled with a conductive material. The Examiner disagrees that Krenik et al fail to teach such. Figure 3 of the reference shows vias (34, 36) that represent one complete throughbore from the top side of the substrate to the bottom side of the substrate. The vias are structured as a single line through the substrate and thus, are considered to be "linear" and therefore read on Applicants' claim. With respect to the vias being filled with conductive material, Krenik et al teaches that the regions (34, 36) are filled with p-type material that create conductive regions extending from the top side of the substrate to its bottom side (col. 2, line 60 – col. 3, line 4). The fact that Applicants create their vias using a different method (drilling, etc.) is immaterial in this situation.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing

date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 571-272-1256. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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